tions satisfy the equations of condition for five eclipses, and that one of these corrections is further supported by Mr. Nevill's amendment (*Monthly Notices*, vol. xxxix.) to Professor Newcomb's discussion of ancient lunar eclipses. If the eclipses were total, the numerical values of my corrections are correct; if the eclipses were partial, then the amazing accident must have occurred that all five are such that they can be rendered tabularly total by the same alterations of the tables.

The Annular Eclipse, 1905 *March* 6, *observed in South Australia.*

Communicated by Sir Charles Todd, K.C.M.G., F.R.S.

The conditions for observing the recent partial eclipse of the Sun in South Australia were extremely favourable. As shown in the *Nautical Almanac*, the central line entered the Australian continent at the head of the Great Bight, and emerged on the East Coast about lat. 22° 50′, passing therefore through our sparsely settled interior. In Adelaide the magnitude of the eclipse was 0·827; at Cradock (lat. 32° 5′) the observer says the annulus was almost discernible at mid-phase. I was unfortunately away in Melbourne, but Mr. Griffiths made very careful observations and furnishes the following notes.

"The eclipse was observed under very good atmospheric conditions. The first contact was noted at $1^h\ 51^m\ 52^s{\cdot}9$ standard time, or $1^h\ 36^m\ 13^s{\cdot}2$ Adelaide mean time. This is probably within a second or two of the real time, as I was looking at the exact spot: the limb was beautifully defined, and the merest indentation was observed. There were two large groups of spots on the Sun visible to the naked eye, one on the western side and the other in the eastern hemisphere. The Moon reached the western group at $2^h\ 14^m\ 37^s{\cdot}9$, or $1^h\ 58^m\ 58^s{\cdot}2$ A.M.T., and finally covered it at $2^h\ 23^m\ 25^s{\cdot}8$, or $2^h\ 7^m\ 46^s{\cdot}1$ A.M.T.; the second or larger group was reached at $2^h\ 58^m\ 5^s{\cdot}4$ ($2^h\ 42^m\ 25^s{\cdot}7$ A.M.T.), and finally covered at $3^h\ 9^m\ 43^s{\cdot}4$ ($2^h\ 54^m\ 3^s{\cdot}7$ A.M.T.) The definition was at times perfect, and the most careful scrutiny of the spots as they passed behind the Moon failed to reveal any distortion or change in their appearance: the colour of their umbræ seemed to be decidedly lighter in tone than the black Moon. The final contact was noted at $4^h\ 54^m\ 26^s{\cdot}1$, or $4^h\ 38^m\ 46^s{\cdot}4$ A.M.T., and was very exact, the limb being steady.'

Taking the time of final contact, Captain Lee, the Superintendent of Prince Alfred Sailors' Home, Port Adelaide, made the longitude of the Observatory $9^h\ 14^m\ 15^s{\cdot}3$, the adopted longitude from a number of observations and comparisons with Melbourne and Sydney Observatories being $9^h\ 14^m\ 20^s{\cdot}3$, an excellent result from a single observation.

The following temperature observations were made at the Observatory.

Standard Time.		Shade.		Relative Humidity.	Solar.	
		D.B.	W.B.		Lampblack Bulb in Vacuo.	Lampblack Bulb not in Vacuo.
h m s	h m			%		
(1 44 20·3 A.M.T.)	2 0	69·5	58·0	48	126·7	103·8
	10	71·1	58·6	46	126·8	105·5
	20	69·7	58·2	48	124·8	104·3
	30	69·5	58·6	50	118·8	97·5
	40	68·2	57·3	49	109·0	91·0
	50	68·7	58·0	51	102·0	89·1
	3 0	67·3	57·2	52	95·6	85·2
	10	66·2	56·7	54	88·0	78·5
	20	66·0	57·1	56	81·1	75·3
	30	65·2	57·0	58	76·8	73·0
	40	64·5	56·8	60	76·5	72·0
	50	64·9	57·2	60	80·4	75·7
	4 0	65·3	57·0	58	86·5	79·0
	10	66·0	57·1	56	92·5	83·0
	20	66·8	57·5	55	98·2	84·5
	30	67·0	57·8	55	102·5	90·0
	40	67·0	58·0	56	105·3	92·0
	50	67·0	58·0	56	106·2	92·3
	5 0	67·1	57·8	55	105·4	...

Similar observations made by both private and official observers throughout the State give very similar differences to the above.

My friend Mr. A. W. Dobbie, who is a member of our local Astronomical Society and of the New South Wales branch of the B.A.A., and is an enthusiastic amateur astronomer, took a series of very interesting photographs, using an 18-inch silvered glass reflector, stopped down to $4\frac{1}{2}$ inches, copies of which (nine in all) I enclose. The first was taken at $1^h\ 58^m\ 5^s$ standard time, or $1^h\ 42^m\ 25^s$ A.M.T., and the last at $4^h\ 54^m\ 3^s$ ($4^h\ 38^m\ 23^s$ A.M.T.) or 23 seconds before final contact. The central phase, which occurred at $3^h\ 30^m$ standard time, is nearly shown by No. 5, taken at $3^h\ 27^m\ 37^s$. I might add that these are Mr. Dobbie's first attempts to photograph the Sun, and, further, that he ground the mirror, silvered it, and mounted it himself.

The decrease in the actinic power of the light during the eclipse was noted both here and at other places by exposing sensitised paper for definite periods as the eclipse progressed, and a measure of the decrease was obtained by the Rev. N. H. Louwyck, of Georgetown, by means of a Wynn Infallible Print Meter—this showed that with 16 as the value before the eclipse it decreased to between 5 and 6 (or $\frac{1}{3}$) at the middle phase.

The Observatory, Adelaide:
1905 *June* 8.

Observations of Vesta made at the Natal Observatory, Durban.

Communicated by E. Nevill.

The following observations were made by Mr. Rendell by means of a cross-bar micrometer with the equatorial refractor, aperture 8 inches, focal length 10 feet. Magnifying power 50.

Date. 1905.	Greenwich Mean Time. h m s	Apparent Difference. Vesta minus Star. R.A. m s	N.P.D. ″	Vesta's Approx. Hour-Angle. h m	No of Comparisons.	Comparison Star.
May 23	3 54 27	+1 30·64	−8 11·3	2 3 E.	7	*a*
,,	5 38 53	+1 32·12	−7 57·8	0 18 E.	4	*a*
,,	6 32 2	+1 32·64	−7 29·3	0 35 W.	4	*a*
24	6 47 21	+1 52·26	−0 41·3	0 54 W.	7	*a*
25	3 54 55	+2 11·01	+5 20·9	1 55 E.	6	*a*
July 4	6 57 47	+3 18·25	−3 53·2	3 13 W.	2	*b*
13	6 51 55	+4 39·32	+1 33·7	3 32 W.	5	*c*

Comparison Stars.

		R.A. h m s	N.P.D. ° ′ ″
a.	Lalande 22743 (Paris 14796)	12 0 47·61	79 38 27·2 (1875·0)
b.	,, 23608 (,, 15505)	12 31 42·27	86 1 45·3 ,,
c.	,, 23851 (,, 15726)	12 41 17·62	87 37 51·3 ,,

Notes.

The observations have not been corrected for refraction or parallax.

May 23. The following observations were obtained with the 3-inch transit instrument:—

R.A. of Star *a* = 12 2 21·02
R.A. of Vesta = 12 3 53·07
} Diff. = $1^m\ 32^s{\cdot}05$ (G.M.T. = $5^h\ 57^m\ 10^s$)

July 4. Cloudy, observation doubtful.

Natal Observatory, Durban:
1905 *August* 31.